

PORTABLE MONITORS

Portable units operate on a continuous basis and operate on batteries. They consist of one or more of the following: a sensor, digital read-out, an alarm. The sensor responds to any level of H₂S in the atmosphere as long as the unit is rated for that concentration. PGV uses three different types of portable monitors for H₂S:

- Jerome 631-X (PPB)
- LTX 312
- TMX 412

Jerome 631-X

The Arizona Instrument, Jerome Model 631-X is a single gas monitor designed with a digital metering display that can do a single sample or continuously monitor for H₂S. It reads H₂S in ppb to ppm. When turning on this monitor, it needs to warm up before it will function properly.

LTX 312

The Industrial Scientific Model LTX 312 triple gas monitor is designed to simultaneously and continuously monitor oxygen level, combustible gases and H₂S.

When turning on this monitor, it is designed to automatically recognize and display the sensor configuration. This monitor has an audible alarm and an LCD display screen.

Alarm settings are:

Gas	Low Alarm	High Alarm
LEL	10%	20%
O ₂	19.5%	23.5%
O ₂	10 ppm	20 ppm

TMX 412

The Industrial Scientific Model TMX 412 is a four-gas monitor designed to simultaneously and continuously monitor oxygen level, combustible gases, H₂S, and SO₂ (sulfur dioxide).

When turning on this monitor, it is designed to automatically recognize and display the sensor configuration. This monitor has an audible alarm and an LCD display screen.

Alarm settings are:

Gas	Low Alarm	High Alarm
LEL	10%	20%
O ₂	19.5%	23.5%
H ₂ S	10 ppm	20 ppm
SO ₂	2.0 ppm	4.0 ppm



H₂S FUNCTIONAL TEST MODULE

Included with the H₂S Functional Test Module, you should find the following:

- AC Power Line Cord
- Barbed and non-barbed dessicator caps
- Tygon tube (2 feet)
- Tube adaptor
- Cap (2)
- This Manual

FUNCTIONAL TEST PROCEDURE

CAUTION: Perform this test in a well ventilated area at normal room temperature.

1. Perform a Sensor Regeneration on your instrument. (Refer to your Jerome Analyzer's operator' manual for the procedure.)
2. In a well vented area, firmly attach the Tygon tube to the Functional Test Module's sample gas outlet. Insert the tube adaptor into the free end of this tube and cap the exposed end of the adaptor. **USE CAUTION.** A small amount of H₂S will escape.

NOTE: Always keep the tube adaptor (or sample gas outlet) **CAPPED** when the FTM is not in use.

3. Remove the desiccant fill cap and the foam plug. Do not remove the rigid white disk at the bottom of the tube. Remove any spent desiccant (blue turned pink). Fill with fresh indicating type desiccant. Replace the foam plug and the cap. (If the barbed fill cap is being used, be sure it is not capped, and any connected gas source is properly set up.)
4. Attach the line cord to the Functional Test Module. Plug it into a 110VAC source and turn ON the power switch (located on the side of the FTM).
5. **Wait 20 to 30 minutes before proceeding.** *The cap should be left on the tubing adapter; scrubbed exhaust gas is vented out the rear port.*
6. Verify that the FTM's pump lamp is flickering rapidly, and that the heater lamp is blinking slowly (the heater lamp may blink intermittently). If either lamp is always off, or on continuously, the unit may not be

operating correctly. (Temperatures below 10°C or above 30°C may cause this, as well as plugged source or exhaust ports. The source port is the desiccant fill cap and the exhaust port is located on the back of the module.)

7. Plug the tubing adaptor into the instrument's intake and tighten the intake tube nut to ensure an **airtight seal**.
8. Take and record 10 analyzer samples according to the following: Press SAMPLE. When the sample's concentration appears, record it, wait 30 seconds, then take another sample. Repeat this until a total of 10 samples have been taken and recorded.
9. Disregard the first 5 samples and average the last 5.

"ACCEPTABLE" AVERAGE VALUE RANGES

Jerome Model 631 or 631-X	.20 TO .30 ppm H ₂ S
Jerome Model 621	200 TO 300 PPB H ₂ S

If your average is within the acceptable range, your Jerome Analyzer is functioning properly.

If your average is NOT within the acceptable range:

- A. Have you followed the functional test procedures exactly? Is either the source or exhaust port plugged? Did you let the FTM warm up and stabilize for 20-30 minutes? Are the connections tight and proper.
 - B. Does your permeation tube need replacement? How long has it been in use, and for how many hours?
 - C. Can you check the FTM H₂S output with another instrument? Is it within range?
 - D. Do you suspect that your Jerome Analyzer may be malfunctioning, or is out of calibration? Has it been calibrated at the factory in the last year?
 - E. Call AZI Customer Service, Toll Free (800) 528-7411, if you need help with any of the above, or if you need to return your FTM or Jerome Analyzer for repair.
10. Turn off the Functional Test Module. **Cap the tube adaptor** (or the sample gas outlet if the Tygon tube is removed). Unspent desiccant may be preserved by using the barbed desiccator fill cap and capping the barb. Store the FTM in a dry, well ventilated area away from sources of ignition, heat, and oxidizing agents.
Note: The desiccant can be regenerated in an oven @ 200°C (400°F).

E046: Calibrate H₂S Gas Sensors & Function Test Alarm Panel

I. SAFETY PRECAUTIONS

1. Ensure area is declassified (no explosive gasses are present) before removing transmitter covers.

II. TOOLS, PARTS, MATERIALS, TEST EQUIPMENT

1. Set of small screwdrivers.
2. Digital VOM.
3. Test gas with regulator, hose and sample cups.
 - a. 1 bottle of zero air.
 - b. 1 bottle of H₂S calibration gas.

III. PROCEDURE

A. Unitized Detectors:

1. Apply zero air to sensor.
2. Use reset button to put transmitter in calibration mode.
3. After transmitter completes zero calculations, apply H₂S calibration gas.
4. Verify LED readout indicates calibration gas H₂S level and that alarm signal is sent.
5. Remove calibration gas and verify that controller returns to "monitor" mode.

B. Remote H₂S Transmitters:

1. Place selector switch in "CAL".
2. Apply zero air to sensor, allowing reading to stabilize for approx. 2 minutes.
3. Connect digital VOM to test points.
4. Adjust "ZERO" potentiometer for a reading of 1.0 VDC.
5. Apply H₂S calibration gas to sensor and allow reading to stabilize. This will take approximately 5 - 7 minutes with 20 ppm H₂S gas.
6. Calibration pass.

Preventive Maintenance Brief List Report

Date: 6/25/2013 13:15:28

PM ID No	Asset Number	Frequen	Shadow Code	PM Last Date	PM Last Usage	Next Create Date	Next Due Date	Override Date	Season Begin	Season End	Current Work Order
220	PMJ-2	A1		11/10/2010	0.0000	10/23/2011	11/10/2011	00/00/0000			P830465
Work Requested											
A1: FACTORY RECERTIFICATION OF JEROME 631-X H2S ANALYZER. S/N 01123, RMA #18546 X174 DUE. Freq ok. Sent out for calibration 10/31/11 Abel. PM: 220											
219	PMJ-1	A1		04/10/2013	0.0000	03/23/2014	04/10/2014	00/00/0000			
Work Requested											
A1: FACTORY RECERTIFICATION OF JEROME 631-X H2S ANALYZER. SERIAL NO: 1135 DUE. PM: 219											
222	PMJ-3	A1		04/11/2013	0.0000	03/24/2014	04/11/2014	00/00/0000			
Work Requested											
A1: FACTORY RECERTIFICATION OF JEROME 631-X H2S ANALYZER. SERIAL NO: 1113 DUE. PM: 222.											
1049	PMJ-TEST	A1		04/22/2013		04/04/2014	04/22/2014	00/00/0000			
Work Requested											
A1: JEROME 918 H2S FUNCTIONAL TEST MODULE SERIAL NO: FTM-1333. DUE CALIBRATION. PM: 1049											
221	PMJ-4	A1		05/08/2013	0.0000	04/20/2014	05/08/2014	00/00/0000			
Work Requested											
A1: FACTORY RECERTIFICATION OF JEROME 631-X H2S ANALYZER. SERIAL NO: 1173 DUE. PM: 221											
546	50-FMG-01	2M		05/15/2013	0.0000	07/06/2013	07/15/2013	00/00/0000			
Work Requested											
2M: CALIBRATE 34 FIXED H2S GAS SENSORS & TRANSMITTERS. FUNCTION CHECK ALARM PANEL. PM: 546											
<div>Work Type PM</div> <div>WorkClass PM</div> <div>Work Location CSC</div> <div>Work Type PM</div> <div>WorkClass PM</div> <div>Work Location PLANT SITE</div>											

NOTE: "Season" and "Season End" columns have the format "month/day"

Preventive Maintenance Brief List Report

Date: 6/25/2013 13:15:28

PM ID No	Asset Number	Frequency Code	Shadow Group	PM Last Date	PM Last Usage Date	Next Create Date	Next Due Date	Override Date	Season Begin	Season End	Current Work Order
1437	PMJ-1	M1		06/07/2013		07/02/2013	07/08/2013	00/00/0000			
Work Requested M1: PERFORM CALIBRATION CHECK ON JEROME 631-X H2S ANALYZERS SERIAL NUMBERS 1113, 1135, 1173 AND 01123. PM: 1437											
Work Type PM											
WorkClass PM											
Work Location I & E SHOP											

7 record(s) listed.

NOTE: "Season Begin" and "Season End" columns have the format "month/day"